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A-level  
PHYSICAL EDUCATION  
7582/2

PAPER 2 FACTORS AFFECTING OPTIMAL PERFORMANCE IN PHYSICAL  
ACTIVITY AND SPORT

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Mark scheme

Specimen Assessment Material

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V1.0

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events in which all associates participate and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from [aqa.org.uk](http://aqa.org.uk)

## Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer, read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

### Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level, you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as in the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

### Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

**Section A****Exercise physiology and biomechanics**

**01** Identify the forces labelled **X** and **Y** in **Figure 1** that act on the runner during a race.

**[1 mark]**

**Marks for this question: AO2 = 1**

A

**02** Training methods are used to improve health and physical fitness.

Which **one** of the following training methods would be used to improve aerobic endurance?

**[1 mark]**

**Marks for this question: AO1 = 1**

B

**03.1** **Table 1** shows time and velocity data for the first 6 seconds of a 100m sprint.

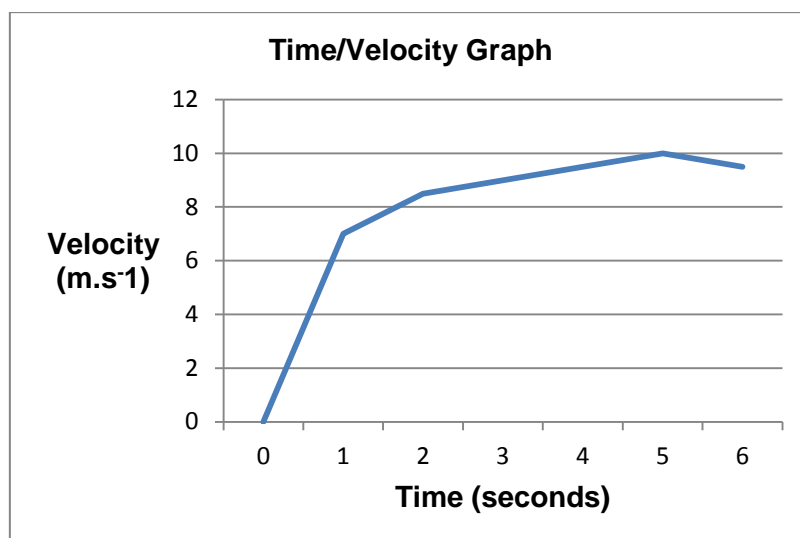
Plot the points from **Table 1** on the time/velocity graph.

**[2 marks]**

**Marks for this question: AO2 = 2**

Award **one** mark for each of the following points.

- Plot all points accurately on axes given.
- Join points together.



**Maximum 2 marks**

**03.2** Identify the period of time when acceleration was the greatest.

**[1 mark]**

**Marks for this question: AO2 = 1**

Greatest acceleration: between 0 and 1 second.

**Maximum 1 mark**

**04.1** Discus is another athletic event.

Describe how a lift force can be generated by a discus in flight.

**[4 marks]**

**Marks for this question: AO1 = 4**

Air molecules striking the under surface of the discus are accelerated (1) this causes a pressure difference between the upper and lower surfaces of the discus (1). This creates a pressure gradient (1) creating a lift force/Bernoulli effect (1).

Accept other relevant responses as to how a lift force can be generated by a discus in flight.

**Maximum 4 marks**

**04.2** Explain how a high angle of attack will affect the distance travelled by the discus.

**[3 marks]**

**Marks for this question: AO1 = 1 and AO3 = 2**

**AO1**

- The discus does not travel as far/stalls (1).

**AO3** (sub max 2 marks)

- A high angle of attack will mean the discus produces less lift /more drag (1).
- As a result, air begins to flow less smoothly over the top of the discus (1).
- Meaning that air flow over the top of the discus becomes more and more separated (1).

**Maximum 3 marks**

**05** Explain why the physical preparation and mental preparation for performers in golf and in rugby may differ.

**[8 marks]**

**Marks for this question: AO1 = 2, AO2 = 3 and AO3 = 3**

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
4	7–8	Knowledge is consistently accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is consistently used. The answer almost always demonstrates substantiated reasoning, clarity, structure and focus.
3	5–6	Knowledge is usually accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is often used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
2	3–4	Knowledge is sometimes accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Analysis and/or evaluation is sometimes made between different relevant factors and their impact, but may lack coherence. Relevant terminology is sometimes used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and focus.
1	1–2	Knowledge may be limited. Application of breadth or depth of knowledge may be limited or not evident. There may be little or no analysis and/or evaluation between different relevant factors and their impact. Relevant terminology is occasionally used. The answer may lack substantiated reasoning, clarity, structure and focus.
	0	No relevant content.

**Possible content may include:**

#### **AO1 – Knowledge of physical and mental preparation**

Physical preparation – Eg a warm up is split into three phases each phase, has a specific function. The phases consist of a pulse raiser to increase heart rate and oxygen delivery to the muscles, stretches to increase temperature of the muscles so they become more pliable and less prone to injury, and a skill related practice at a higher intensity to prepare the body for the level of activity required in the game. There is an increase in release of synovial fluid to allow the joints to move more freely.

Mental preparation – Eg during the warm up, there is time for the application of stress management techniques, for example mental rehearsal and imagery to help control arousal levels. Physically completing the skills section of the warm up can increase intrinsic motivation if executed well.

**AO2 – Application to golf and rugby**

Eg an increase heart rate and oxygen delivery to the muscles will ensure that appropriate energy supplies are available for the start of a rugby match, so that the players can play at an appropriate intensity as soon as the whistle is blown.

The increase in release of synovial fluid allows the joints to move more freely, which will be essential for golfers to achieve the full range of movement required at the hip and shoulder when executing a drive.

The performer can focus on the coming activity and engage in stress management techniques, such as mental rehearsal to visualise some of the skills they are about to perform, seeing themselves perform successfully. For golfers, this could be seeing themselves hitting the perfect putt on the green. For rugby players, this could be seeing themselves playing the perfect place kick into touch.

**AO3 – Evaluation of why the mental preparation and physical preparation differs between performers in golf and rugby**

Eg All performers need to physically prepare but rugby players will have a more physically demanding warm up as the game is played at a much more intense level than golf. The rugby players will spend longer on pulse raising exercises so they are ready to work their whole bodies at a higher intensity. Golfers will focus more on mobility exercises to make sure they have the appropriate amount of flexibility at the joints so they can execute the golf swing effectively.

All performers need to mentally prepare but the arousal levels will differ between golfers and rugby players. Due to the nature of the skill, golfers will need a lower level of arousal than rugby players. For example, when putting, arousal levels will need to be low to allow concentration on the fine motor skill task compared to the gross motor skill required when rucking and mauling. Therefore, the warm up will need to be designed to increase arousal in preparation for rugby but possibly reduce it in preparation for golf.

Credit other relevant points explaining why mental preparation and physical preparation for performers in golf and in rugby may differ.

**Maximum 8 marks**

**06** **Figure 2** shows a dancer performing a spin as part of a routine.

Explain Newton's Laws of Motion in relation to the dancer spinning **and** how the dancer can alter her rate of spin.

**[15 marks]**

**Marks for this question: AO1 = 4, AO2 = 5 and AO3 = 6**

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
5	13–15	Knowledge is consistently comprehensive, accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is almost always used. The answer demonstrates a high level of substantiated reasoning, clarity, structure and focus.
4	10–12	Knowledge is usually comprehensive, accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is usually used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
3	7–9	Knowledge is generally accurate and sometimes detailed. Application of breadth or depth of knowledge is sometimes evident. Some analysis and/or evaluation is made between different relevant factors and their impact but may sometimes lack coherence. Relevant terminology is used but may sometimes be missing. The answer sometimes demonstrates substantiated reasoning, clarity, structure and focus.
2	4–6	Knowledge is sometimes accurate but may lack detail. Application of breadth or depth of knowledge is occasionally evident. Some analysis and/or evaluation is attempted between different relevant factors and their impact, but is likely to lack coherence. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and/or focus at times.
1	1–3	Knowledge is limited and may lack accuracy and detail. Application of breadth or depth of knowledge is likely to be limited or not evident. There may be very little or no analysis and/or evaluation made between different relevant factors and their impact. Relevant terminology used only very occasionally. The answer often lacks substantiated reasoning, clarity, structure and/or focus.
	0	No relevant content.



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**Possible content may include:**

**AO1 – Knowledge**

**Identified Newton's Laws and/or how the dancer can alter her rate of spin using simple statements**, eg Newton's First Law states that a body will continue to turn about its axis of rotation with constant angular momentum unless an external force is exerted upon it.

**AO2 – Application**

**Explained Newton's Laws in relation to the dancer and/or how the dancer can alter her rate of spin**, eg Newton's First Law states that a body will continue to turn about its axis of rotation with constant angular momentum unless an external force is exerted upon it. Therefore the dancer will continue to spin with constant angular momentum unless an external force acts on her.

**AO3 – Analysis/Evaluation**

**Linked explanation of Newton's Laws in relation to the dancer and the rate of spin**, eg Newton's First Law states that a body will continue to turn about its axis of rotation with constant angular momentum unless an external force is exerted upon it. Therefore the dancer will continue to spin with constant angular momentum unless an external force acts on her. This is known as the principle of conservation of angular momentum. The dancer can alter her rate of spin by moving her limbs either closer or further away from the axis of rotation, therefore to increase her rate of spin she will need to bring her arms close to her body, without the ability to do this she will be unable to control the movement. If she has failed to warm up appropriately she will not be able to achieve the most efficient position, making the spin more difficult to perform and with a reduction in potential oxygen delivery (due to the lack of a suitable warm up) she will fatigue more quickly reducing her ability to control the spin.

Credit other relevant points explaining Newton's Laws of Motion in relation to the dancer spinning and how the dancer can alter her rate of spin.

**Maximum 15 marks**

**Section B****Sports psychology**

**07** The inverted U theory suggests optimal arousal can improve performance.

Which **one** of the following statements is correct?

**[1 mark]**

**Marks for this question: AO1 = 1**

A

**08** The Theory of Achievement Motivation suggests there are **two** personality types: Need to Achieve and Need to Avoid Failure.

Which **one** of the following statements best describes the characteristics of a performer with a Need to Achieve personality?

**[1 mark]**

**Marks for this question: AO1 = 1**

B

**09** Motivation is used to increase the effort and persistence of a performer.

Explain how a coach can use different forms of motivation to improve performance. Use examples to support your answer.

**[3 marks]**

**Marks for this question: AO3 = 3**

Award **one** mark for each of the following points.

- Intrinsic motivation by setting set goals/challenges that help the performer to develop feelings of self-satisfaction/pride (1).
- Extrinsic motivation by providing tangible rewards such as prizes/medal/cups/certificates (1).
- Extrinsic motivation by providing intangible rewards such as praise/records/applause (1).

**Maximum 3 marks**

**10** Fiedler suggests that a task-orientated style of leadership should be used if the situation is classed as favourable.

Using an example, outline the characteristics of a favourable situation.

**[3 marks]**

**Marks for this question: AO1 = 2 and AO2 = 1**

Award **one** mark for each of the following points.

**AO1** (sub max 2 marks)

- Leader respected by group/leader has good relationship with group (1).
- Clear task/goal/roles (1).
- Good support network/high level of trust (1).
- Group highly motivated/high ability/highly successful/good resources/equipment/facilities (1).

**AO2** (sub max 1 mark)

- For example, a popular basketball coach whose team are focused on winning the regional finals for the third consecutive year (1).

Accept other relevant responses outlining the characteristics of a favourable situation. Answers must use an example.

**Maximum 3 marks**

**11** **Figure 3** shows Weiner's Model of attribution.

Define the term attribution **and**, using sporting examples, describe the different attributions labelled **B**, **C** and **D**.

**[4 marks]**

**Marks for this question: AO1 = 1 and AO2 = 3**

Award **one** mark for each of the following points.

- Perceived reason/cause/blame for success/failure of performance (1).
- (B - effort) amount of practice/preparation given for performance by the performer (1).
- (C - task difficulty) standard of competition/opposition (1).
- (D - luck - factors beyond performer's control) – poor weather/ windy weather blowing shots off target/poor refereeing decisions, eg disallowing a goal (1).

**Maximum 4 marks**

**12** Elite performers need high levels of health and fitness to display a positive attitude to training and competition to be successful.

Explain the term attitude **and** using named psychological theories, outline how the negative attitude of a performer towards training could be changed. Use examples to support your answer.

**[8 marks]**

**Marks for this question: AO1 = 2, AO2 = 3 and AO3 = 3**

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
4	7-8	Knowledge is consistently accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is consistently used. The answer almost always demonstrates substantiated reasoning, clarity, structure and focus.
3	5-6	Knowledge is usually accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is often used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
2	3-4	Knowledge is sometimes accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Analysis and/or evaluation is sometimes made between different relevant factors and their impact, but may lack coherence. Relevant terminology is sometimes used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and focus.
1	1-2	Knowledge may be limited. Application of breadth or depth of knowledge may be limited or not evident. There may be little or no analysis and/or evaluation between different relevant factors and their impact. Relevant terminology is occasionally used. The answer may lack substantiated reasoning, clarity, structure and focus.
	0	No relevant content.

**Possible content may include:****AO1 – Knowledge**

**Characteristics of an attitude are identified**, eg attitudes are beliefs, values or feelings linked to an attitude object. Answers may include reference to the Triadic Model and its components, eg cognitive, affective and behavioural. Relevant psychological theories would include cognitive dissonance and persuasive communication.

**AO2 – Application**

**Answers may include key terms and theories which are explained with examples.**

The term 'attitude' may be expanded linking the components of the Triadic Model to sporting examples. For example, the cognitive component refers to knowledge about a specific sport, eg running, and may include points such as 'it is good to maintain fitness levels, for stress relief and to lose weight.'

The theories are explained with relevant examples. For example, an answer may outline Persuasive communication and include relevant points such as the messenger should be of high status and deliver a high quality message with new information given. Further points may include reference to the timing of the delivery of message and the resistance to change of the individual or current strength of attitude.

**AO3 – Analysis**

**Answers may include linked factors to show the impact of how an attitude can be changed and affect future performance.**

The student is able to link different factors together to explain the impact of each on sporting performance. For example, when using cognitive dissonance theory, by changing the cognitive component through provision of new information, such as the benefits of exercise, an individual may change their behaviour patterns and start to exercise on a regular basis. This form of linking and application can be repeated for each theory or component of an attitude.

Credit other relevant explanation points of attitudes. Answers must outline, using examples, how the negative attitude of a performer towards training could be changed

**Maximum 8 marks**

**13** Successful teams often display cohesion.

Explain the importance of cohesion on group productivity **and** suggest strategies a coach can use to improve the actual productivity of a team.

**[15 marks]**

**Marks for this question: AO1 = 4, AO2 = 5 and AO3 = 6**

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
5	13-15	Knowledge is consistently comprehensive, accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is almost always used. The answer demonstrates a high level of substantiated reasoning, clarity, structure and focus.
4	10-12	Knowledge is usually comprehensive, accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is usually used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
3	7-9	Knowledge is generally accurate and sometimes detailed. Application of breadth or depth of knowledge is sometimes evident. Some analysis and/or evaluation is made between different relevant factors and their impact but may sometimes lack coherence. Relevant terminology is used but may sometimes be missing. The answer sometimes demonstrates substantiated reasoning, clarity, structure and focus.
2	4-6	Knowledge is sometimes accurate but may lack detail. Application of breadth or depth of knowledge is occasionally evident. Some analysis and/or evaluation is attempted between different relevant factors and their impact, but is likely to lack coherence. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and/or focus at times.
1	1-3	Knowledge is limited and may lack accuracy and detail. Application of breadth or depth of knowledge is likely to be limited or not evident. There may be very little or no analysis and/or evaluation made between different relevant factors and their impact. Relevant terminology used only very occasionally. The answer often lacks substantiated reasoning, clarity, structure and/or focus.
	0	No relevant content.

**Possible content may include:**

**AO1 – Knowledge**

**Explanation of key terms such as cohesion – the tendency of a group to stay together to achieve their goal/task.** Other key terms may include, task cohesion, social cohesion, social loafing and the Ringelmann effect.

Answers may also explain that cohesion depends on group members, the task, the leader and other team based factors. Expanded answers may refer to the equation 'Actual productivity = potential productivity – losses due to faulty processes' and then explain the cause of faulty processes.

**AO2 – Application**

**Answers may include key terms and theories which are explained with examples.**

The term 'cohesion' may be expanded linking the types of cohesion to sporting examples. Similarly, other key terms are linked to examples, such as 'co-ordination losses' may be due to poor communication or misunderstanding of tactics.

**AO3 – Analysis/Evaluation**

**Answers may include linked factors to show the impact of how cohesion can be developed and evaluation of the importance of cohesion.**

The student is able to link different strategies together to explain the impact of each on sporting performance. For example, structured practice will ensure all players understand the tactics causing an improvement in task cohesion. Other points may include giving individuals specific responsibility or set goals, explaining specific roles within the team, providing feedback of performance. Similarly, strategies specifically linked to developing social cohesion can be outlined.

Evaluation of the importance of cohesion may include a reasoned discussion. For example, task cohesion is more important than social cohesion and a team can be successful with poor social cohesion. Social cohesion can undermine performance and the formation of cliques may be damaging as they may not challenge poor performance for fear of upsetting others.

Credit other relevant explanation points on the importance of cohesion on group productivity. Answers must suggest strategies a coach can use to improve the actual productivity of a team.

**Maximum 15 marks**

**Section C****Sport and society and technology in sport**

**14** Which **one** of the following definitions best describes the term deviancy?

**[1 mark]**

**Marks for this question: AO1 = 1**

A

**15** Which **one** of the following definitions best describes the term sponsorship?

**[1 mark]**

**Marks for this question: AO1 = 1**

D

**16** Explain how the structure of the World Class Performance Pathway supports the development of elite athletes.

**[3 marks]**

**Marks for this question: AO2 = 3**

Award **one** mark for each of the following points.

- World class talent feeds into the pathway to identify those with the potential to progress through the pathway and places them on development programmes involving training and competing, eg canoe sprint (1).
- World class podium potential - comprising of athletes whose performances have suggested that they have realistic medal winning capabilities for 2020/newly funded sports that are demonstrating the ability to be competitive by 2020, eg British basketball (1).
- World class podium is the top/end of the pathway – supporting athletes who are likely to win a medal at the next Olympic/Paralympic Games based on previous performance success (ie a maximum of four years away from the podium) (1).

Accept other relevant explanations of how the structure of the World Class Performance Pathway supports the development of elite athletes.

**Maximum 3 marks**



**17** State how the technological development of facilities and equipment can help to optimise elite performance.

**[4 marks]**

**Marks for this question: AO1 = 4**

Award **one** mark for each of the following points.

- (Sports science support) – technology for biomechanical analysis to identify strengths/weaknesses in performance (1).
- High quality facilities to improve training leading to increased fitness (1).
- (Sports medicine) – technology for rehabilitation after injury for example soft tissue therapy (1).
- Technological innovation leading to improvements in kit, eg climate control clothing (1).

Accept other relevant responses as to how the technological development of facilities and equipment can help to optimise elite performance.

**Maximum 4 marks**

**18** Evaluate the reasons why elite athletes will resort to taking illegal, performance-enhancing drugs.

**[3 marks]**

**Marks for this question: AO3 = 3**

Award **one** mark for each of the following points.

- Winning margins are normally slender in power events therefore a performance enhancing drug (PED) that gives bigger/stronger muscles to generate more power could mean the difference between winning and losing (1).
- Long distance events rely on high levels of endurance to maintain required level of physical exertion needed to contend therefore some feel that without the use of PEDs they will not be able to sustain energy production for the duration of the race (1).
- Performance in elite competition creates high pressure situations which may negatively impact on performance, by taking PEDs to reduce anxiety/steady nerves athletes have a greater chance to perform at their optimum (1).

Accept other relevant evaluation points in relation to the reasons why elite athletes will resort to taking illegal performance enhancing drugs.

**Maximum 3 marks**

**19** Many elite sports are now commercialised and seen as a form of entertainment.

Discuss the suggestion that an increase in the commercialisation of sport has been beneficial for performers and the sport.

**[8 marks]**

**Marks for this question: AO1 = 2, AO2 = 3 and AO3 = 3**

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
4	7-8	Knowledge is consistently accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is consistently used. The answer almost always demonstrates substantiated reasoning, clarity, structure and focus.
3	5-6	Knowledge is usually accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is often used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
2	3-4	Knowledge is sometimes accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Analysis and/or evaluation is sometimes made between different relevant factors and their impact, but may lack coherence. Relevant terminology is sometimes used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and focus.
1	1-2	Knowledge may be limited. Application of breadth or depth of knowledge may be limited or not evident. There may be little or no analysis and/or evaluation between different relevant factors and their impact. Relevant terminology is occasionally used. The answer may lack substantiated reasoning, clarity, structure and focus.
	0	No relevant content.

**Possible content may include:**

**AO1 – Knowledge**

**Identified the beneficial impact of commercialisation using simple statements**, eg increase in wages/increase in exposure to the general public.

**AO2 – Application**

**Identified and explained the impact of commercialisation (simple statements)**, eg increase in performers' wages means they can train full time which will improve performance levels/performers become role models and can attract more youngsters to the sport increasing participation levels.

**AO3 – Evaluation**

**Linked explanations and discussion of the impact of commercialisation**, eg increase in performers' wages means they can train full time which will improve performance levels but they may want the money too much and are therefore prepared to take deviant means to succeed such as doping.

Performers become role models and can attract more youngsters to the sport increasing participation levels but that also means they have to portray a positive image as their behaviour is always under the spotlight. Poor behaviour on or off the pitch can reduce participation and spectator levels, as they will become poor role models.

Credit other relevant points in relation to the suggestion that an increase in the commercialisation of sport has been beneficial for performers and the sport.

**Maximum 8 marks**

<b>20</b>	Evaluate the effectiveness of technology as a deterrent for deviant behaviour in sport.	<b>[15 marks]</b>
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**Marks for this question: AO1 = 4, AO2 = 5 and AO3 = 6**

Students are expected to answer in continuous prose, use good English, organise information clearly and use specialist vocabulary where appropriate.

Level	Marks	Description
5	13-15	Knowledge is consistently comprehensive, accurate and well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is coherently and consistently made between different relevant factors and their impact. Relevant terminology is almost always used. The answer demonstrates a high level of substantiated reasoning, clarity, structure and focus.
4	10-12	Knowledge is usually comprehensive, accurate and detailed. Application of breadth or depth of knowledge is often evident. Analysis and/or evaluation is often made between different relevant factors and their impact, and is usually coherent. Relevant terminology is usually used. The answer usually demonstrates substantiated reasoning, clarity, structure and focus.
3	7-9	Knowledge is generally accurate and sometimes detailed. Application of breadth or depth of knowledge is sometimes evident. Some analysis and/or evaluation is made between different relevant factors and their impact but may sometimes lack coherence. Relevant terminology is used but may sometimes be missing. The answer sometimes demonstrates substantiated reasoning, clarity, structure and focus.
2	4-6	Knowledge is sometimes accurate but may lack detail. Application of breadth or depth of knowledge is occasionally evident. Some analysis and/or evaluation is attempted between different relevant factors and their impact, but is likely to lack coherence. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, structure and/or focus at times.
1	1-3	Knowledge is limited and may lack accuracy and detail. Application of breadth or depth of knowledge is likely to be limited or not evident. There may be very little or no analysis and/or evaluation made between different relevant factors and their impact. Relevant terminology used only very occasionally. The answer often lacks substantiated reasoning, clarity, structure and/or focus.
	0	No relevant content.

**Possible content may include:****AO1 – Knowledge of technology and deviant behaviour in sport.**

Use of technology in sport – Eg drugs/doping testing, video analysis, biological passport, video playback, CCTV.

Deviant behaviour in sport – Eg use of PEDs/doping methods to gain competitive advantage, match fixing for financial gain, diving to gain on pitch advantage, hooliganism

**AO2 – Application of the use of technology to detect deviant behaviour in sport**

Eg introduction of biological passport in cycling has helped to identify anomalies in data, which allows detection of drug/doping cheats, eg Jonathan Tiernan-Locke in cycling.

Video analysis used to review incidents in games that weren't punished at the time of occurrence, eg Luis Suarez later banned and fined for biting opponent in a World Cup football match, despite not receiving a yellow/red card at the time.

Tests for PEDs lead to increased chances of catching cheats, eg Justin Gatlin in athletics.

Use of security cameras to catch spectators displaying deviant behaviour, eg Chelsea fans banned by club for life for racist behaviour on the Paris metro before a game.

**AO3 – Evaluation of the effectiveness of technology as a deterrent for deviant behaviour in sport**

Eg technology can be used to help to identify culprits of deviant behaviour so that they can be punished. If an opponent displays deviant behaviour, eg aggression due to their need to win or frustration due to blocked goals, deliberately hurting their opponent off the ball and out of view of the officials, this can be reviewed and culprits are banned/fined/punished retrospectively for their actions. This should act as a deterrent for others which should make sport fairer and less deviant. This should act as a deterrent due to punishment. Other players will see the behaviour has been punished and are less likely to copy this behaviour. This should lead to better role models for grass roots sport, ie children do not copy the deviant behaviour.

However, some performers are still willing to risk deviant behaviour to gain a competitive advantage. The introduction of tests to detect PEDs/doping methods only means that performers look to other methods/drugs to gain a competitive advantage that aren't as easily detectable, eg when EPO drug introduced, cyclists switched to systematic blood doping when riding in the Tour de France.

Although the technology exists, it still needs the support of sporting organisations and governments to fully utilise technology to detect deviant behaviour and sanction those that display it. This doesn't always happen, for example Russian Federation overlooking drug taking in the build up to, and during, London 2012 Olympics.

Deviant behaviour in spectators still occurs, despite increased technology in the form of security cameras. Fans could cover their faces to mask their identity or feel hidden as part of a group, which means they are still participating in hooliganism/racism.

Credit other relevant points evaluating the effectiveness of technology as a deterrent for deviant behaviour in sport.

**Maximum 15 marks**

## Assessment Objective Grid

## A-level Paper 2

	AO1	AO2	A03	Total
<b>Exercise Physiology and Biomechanics</b>				
01		1		1
02	1 Recall			1
03.1		2 Quant		2
03.2		1 Quant		1
04.1	4 Recall			4
04.2	1		2	3
05	2	3	3	8
06	4	5	6	15
<b>Total</b>	<b>12</b>	<b>12</b>	<b>11</b>	<b>35</b>

<b>Sports Psychology</b>				
07	1 Recall			1
08	1 Recall			1
09			3	3
10	2	1		3
11	1	3		4
12	2	3	3	8
13	4	5	6	15
<b>Total</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>35</b>

<b>Sport and Society and Technology in Sport</b>				
14	1 Recall			1
15	1 Recall			1
16		3		3
17	4 Recall			4
18			3	3
19	2	3	3	8
20	4	5	6	15
<b>Total</b>	<b>12</b>	<b>11</b>	<b>12</b>	<b>35</b>

<b>Paper Total</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>105</b>
<b>AO% for paper</b>	<b>33.33%</b>	<b>33.33%</b>	<b>33.33%</b>	<b>100</b>

<b>AO1 % targeting knowledge in isolation on this paper</b>	<b>12.38%</b>
<b>Quant %</b>	<b>2.86%</b>

<b>Paper 1 &amp; 2 Total</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>210</b>
<b>AO% for paper's</b>	<b>23.33%</b>	<b>23.33%</b>	<b>23.33%</b>	

<b>AO1 % targeting knowledge in isolation on paper 1 &amp; 2</b>	<b>7.99%</b>
<b>Quantitative Skills</b>	<b>7.29%</b>

